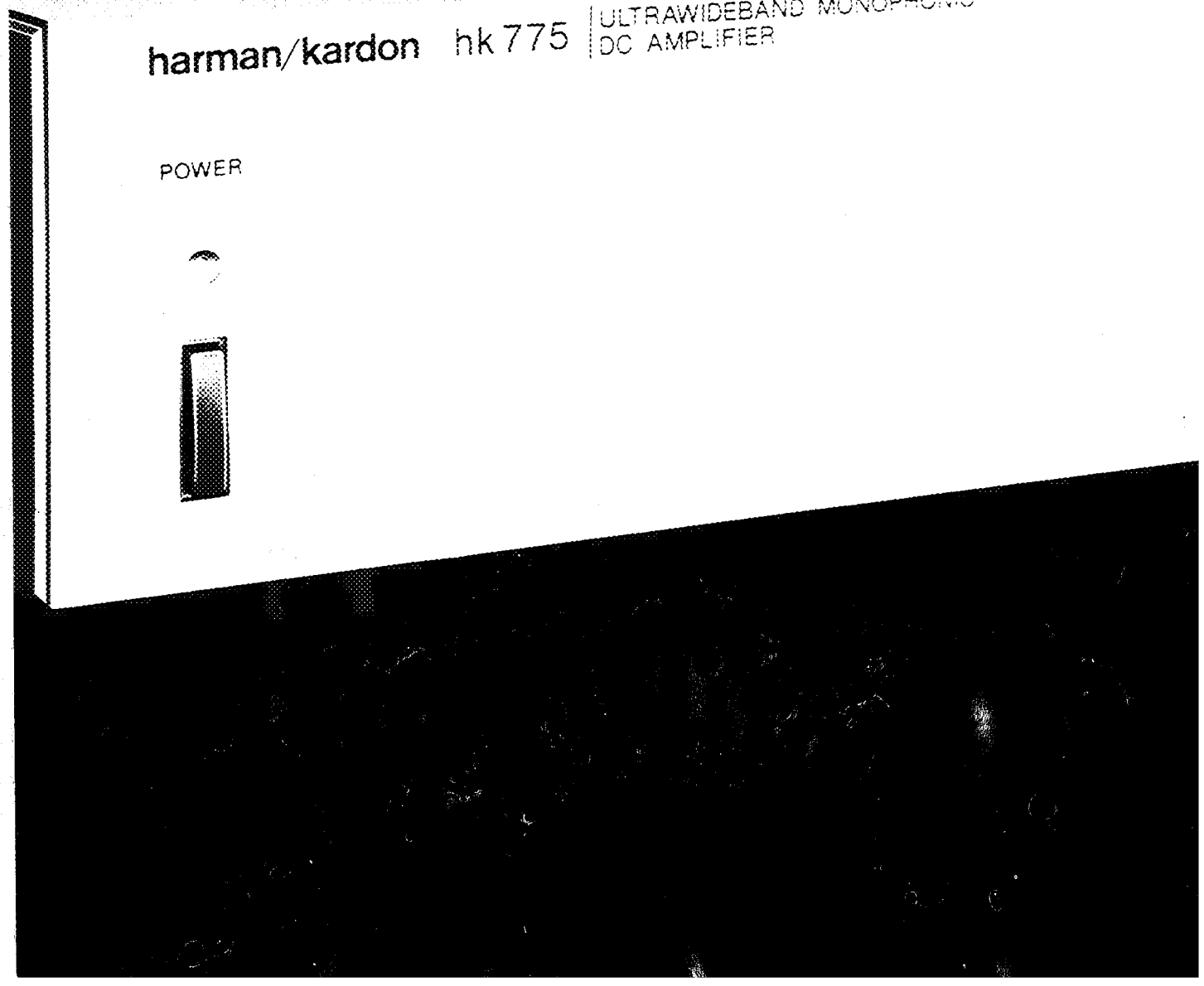
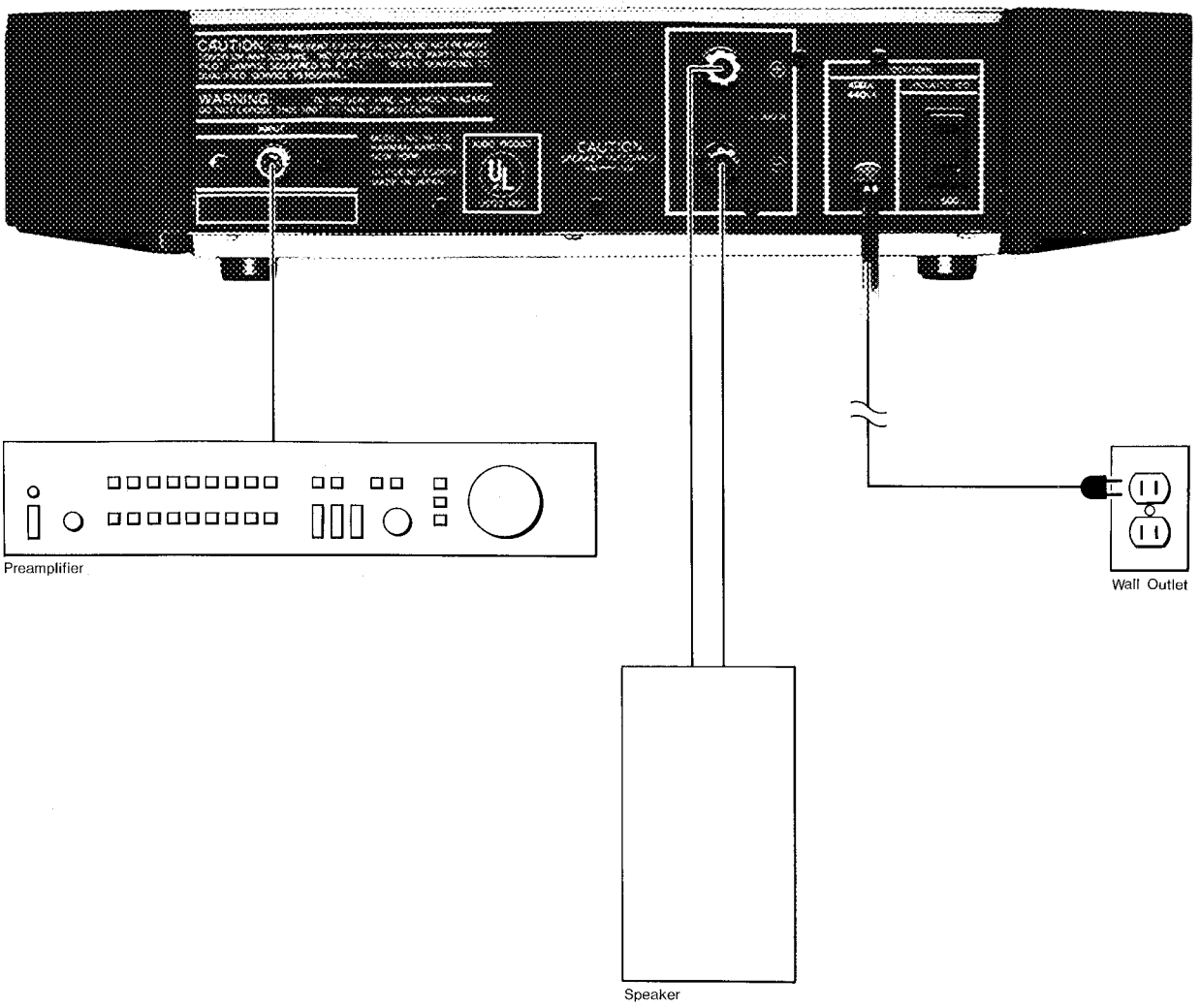
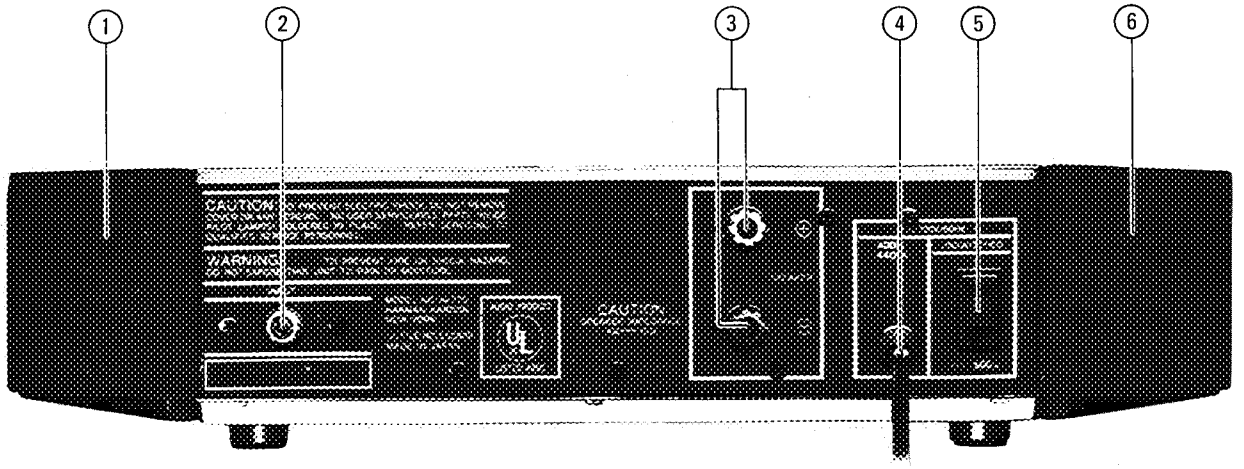
harman/kardon hk775
owner's manual




CAUTION
WARNING
CAUTION
Preamplifier
Wall Outlet
Speaker


1
2
3
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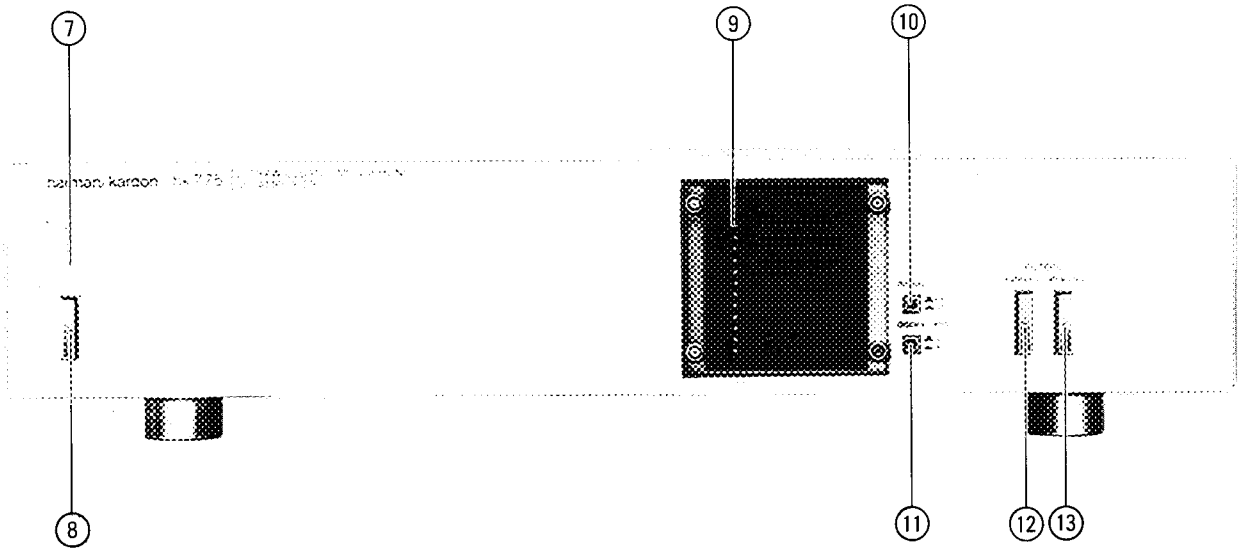
5
6
CAUTION
WARNING


7
8
9
10
11
12
13

Owner's Manual hk775

Your investment in a component high fidelity system indicates you have a greater than average interest in music. The fact that your investment includes a Harman Kardon Monophonic DC Amplifier shows us your appreciation of uncompromised reproduction of the music you enjoy. Throughout the design and manufacture of this unit, we made every effort to assure it will meet all of your expectations.

To ensure continuing high performance, read this manual carefully before you connect and operate your hk775.

Warning:

To prevent fire or shock hazard, do not expose this appliance to rain or moisture.

Connections

For the moment, leave the POWER LINE CORD (4) of the hk775 unconnected. Put the unit on the shelf or table where it will be installed. Leave enough working space so you can make all connections easily.

The hk775 requires adequate ventilation. It should not be installed on a cushion or rug, and a minimum of two inches' (5cm) clearance should be provided. (However, hk700 series components may be stacked.)

Connecting speaker

Use two-conductor stranded wire to connect your speaker to the power amplifier. Eighteen ($1.5mm^2$) gauge lamp cord (zip cord) is satisfactory, but a heavier gauge (16 or 14 gauge) (2.5 or $3mm^2$) is preferable, especially for distances over 25 feet (8 meters).

Cut a cord long enough to reach the speaker. Separate the conductors at each end of the cord for a length of about two or three inches (5 to 7cm). Then carefully remove about one-quarter inch (5mm) of insulation from each free end. Twist the strands of each conductor so they are smooth and tight with no loose strands.

Lamp cord usually provides a "code" that differentiates between the two conductors. A conductor may be coded by a rib, sharp corner, or indentations along the length of the insulation. In some cases a thin colored thread is molded inside the insulation of one conductor. In others, one wire is darker than the other, or the insulation of each conductor is a different color.

Connect one end of the lamp cord to your speaker as follows:

Connect the coded conductor to the speaker's red "+" terminal, and the uncoded conductor to the black "−" terminal. Find the SPEAKER CONNECTORS (3) on the amplifier marked SPEAKER.

Turn the red plastic thumbscrew of the connector marked ⊕ counterclockwise to reveal the side opening.

Insert the bare end of the coded conductor into the opening. Turn the plastic thumbscrew clockwise until the conductor is firmly tightened in its place.

Unscrew the black plastic thumbscrew of the connector marked ⊖ and repeat the same procedure for the uncoded conductor.

Connecting the hk775 to your preamplifier or receiver

Your hk775 is fitted with pin type RCA connector. Using a standard pin type RCA patch cord, connect the preamplifier output connector with the INPUT connector (2) of your hk775. Push the plug in all the way so it is firmly seated, making good electrical contact.

If your control amplifier does not accept a pin type RCA connector, consult your audio dealer for a patch cord with a proper adapter.

AC convenience outlet*

The AC outlet (5) on the rear panel provides power connection for your control amplifier or other equipment drawing as much as 500 watts. The outlet is unswitched and provides power regardless of whether the hk775 is on or off.

Power connection

If you have completed the connections above, you are now ready to place the hk775 in its permanent position and plug the POWER LINE CORD (4) into an AC outlet. To turn the unit on and off, press the POWER SWITCH (8). When power is on, the POWER indicator (6) will light.

Power level display

The power output of the hk775 can be monitored by observing the LEDs on the POWER LEVEL DISPLAY (9).

The display may be turned on or off with the DISPLAY pushbutton (10). With the DISPLAY SENSITIVITY pushbutton (11) in the ×1 position and 8 ohm speaker connected, the power output reading will range from 0.1 watts to 200 watts as indicated by the left 8Ω scale. When a 4 ohm speaker is connected, reading should be taken from the right 4Ω scale which indicates the power output from 0.2 watts to 400 watts.

At low listening levels you may wish to increase the display sensitivity by pushing the DISPLAY SENSITIVITY pushbutton (11) to the ×0.1 position. In this position, the 8Ω scale ranges from 0.01 watts to 20 watts, the 4Ω scale ranges from 0.02 watts to 40 watts.

Filters

To minimize unwanted super-high frequency noises, depress the ULTRASONIC filter pushbutton (13).

To filter out extremely low frequencies, depress the SUBSONIC filter pushbutton (12) to its "on" position (in).

* In some countries, owing to Safety Agency Electrical requirements, this AC receptacle is covered.

The Harman Kardon Model hk775

Monophonic Amplifier

Technical Manual

harman/kardon

PRECAUTIONS

1. Always disconnect the chassis from power line when soldering. Turning the power switch OFF is not enough. Power line leakage passing through the heating element may destroy the transistors.

2. Never attempt to do any work on the transistor amplifiers without first disconnecting the AC line cord and waiting until the power supply filter capacitors have discharged.

3. Replacement for output and driver transistors, if necessary, must be made from the same beta group as the original type.

4. If one output transistor burns out (open or short) always remove all the output transistors in that channel and check the bias adjustment, the control and other parts in the network with an ohmmeter before inserting a new transistor. All transistors in one channel will be destroyed if the base biasing circuit is open on the emitter end.

5. When mounting a replacement power transistor, be sure that the bottom of the flange, the mica insulators and the surface of the heat sink are free of foreign matter, for they may cause transistor failure.

6. Silicon grease must be applied between the transistor and the mica insulator, and between the mica insulator and the heat sink for better heat conduction.

7. Fuses must be replaced with size and type indicated. Use of other types can expose components to destructive current levels.

ALIGNMENT PROCEDURES

DC VOLTAGE BALANCE ADJUSTMENT

Equipment Required: DC Voltmeter

Connect Output Meter To	Adjust	Adjust For
DC voltmeter to SPEAKER terminals	VR401	0V ±10mV

IDLING CURRENT ADJUSTMENT

Equipment Required: DC Voltmeter

Connect Output Meter To	Adjust	Adjust For
DC voltmeter to TP1 (+) and TP2 (—)	VR402	36mV

ALIGNMENT PROCEDURES

POWER LEVEL DISPLAY SENSITIVITY ADJUSTMENT

Equipment Required: Audio Signal Generator and AC VTVM

Notes: 1. Connect signal source to INPUT jack.
2. Press in DISPLAY SENS. push button to ×0.1 (button in) position.

Step	Signal Source	Connect Output Meter To	Adjust	Adjust For
1	1 kHz	8 ohm dummy load and AC VTVM to SPEAKER terminals	Signal source output level	12.65V on AC VTVM
2	1 kHz, −1 dB output level	———	VR1	Topmost LED lights to glimmer

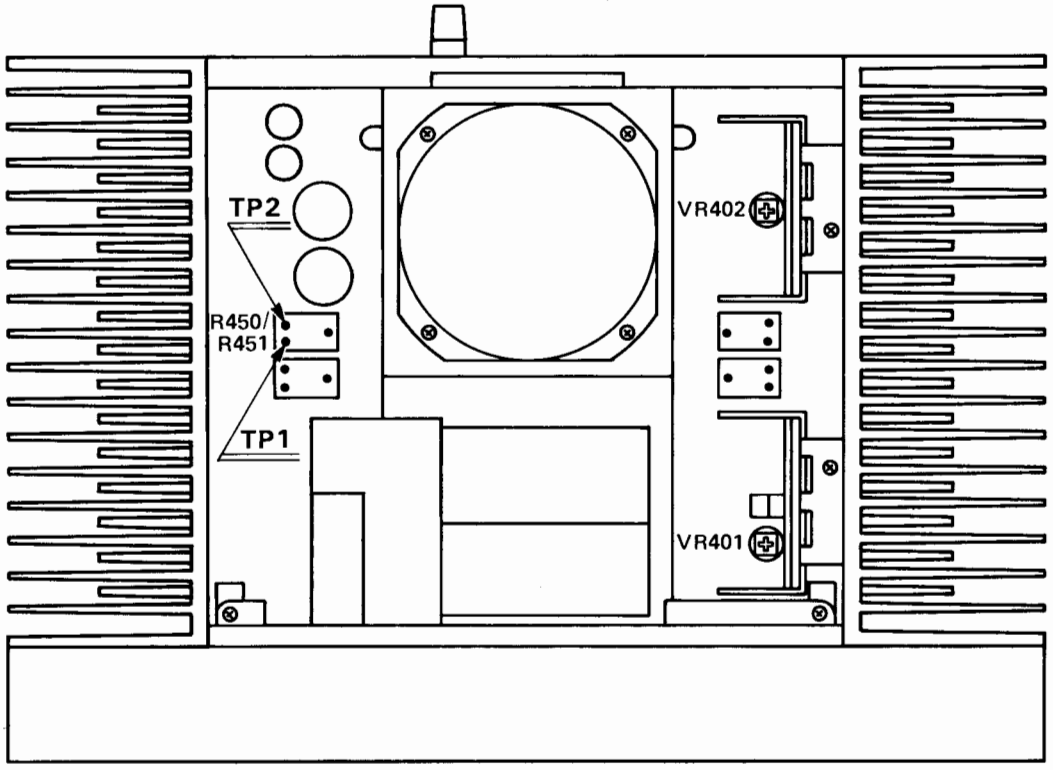
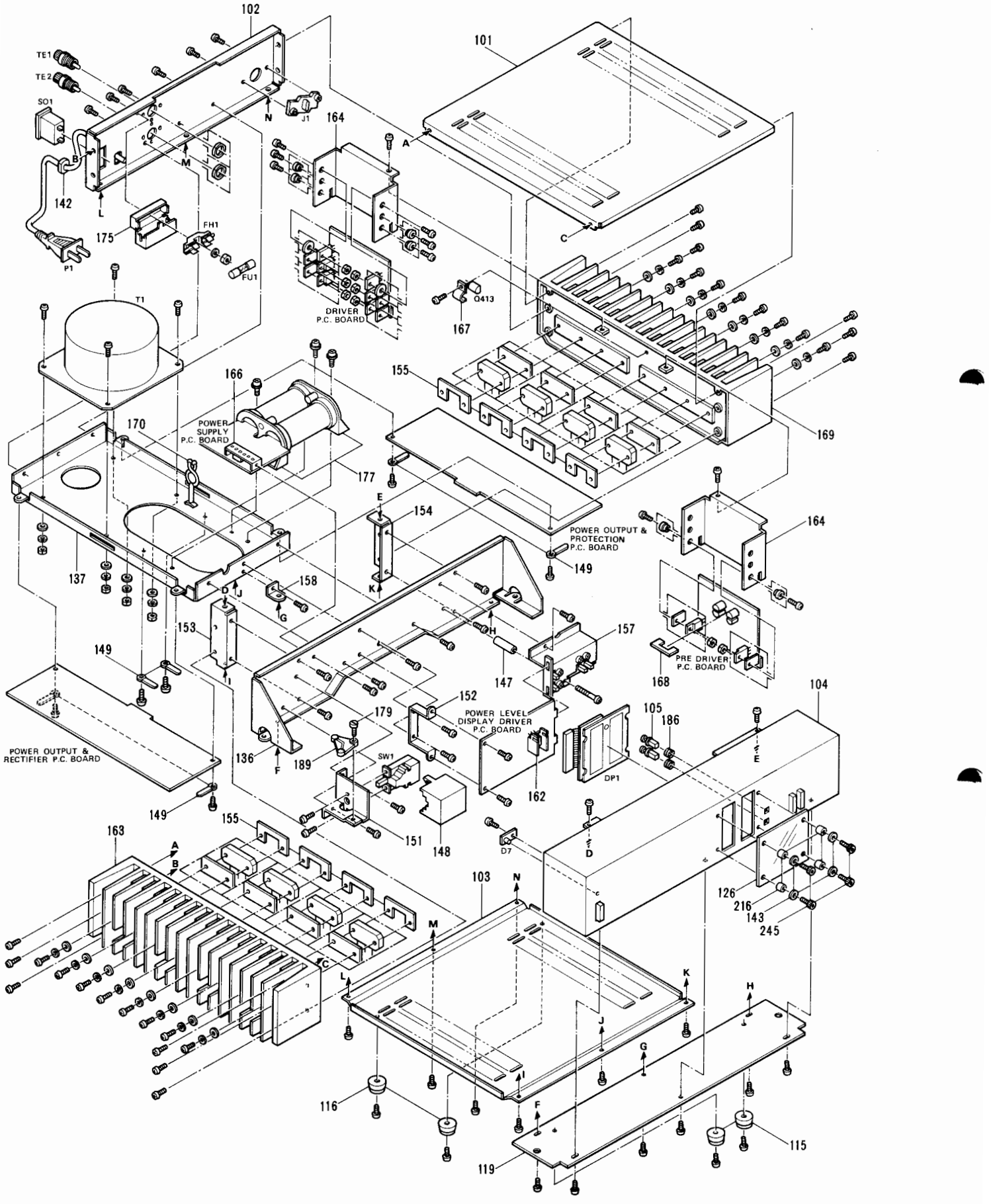
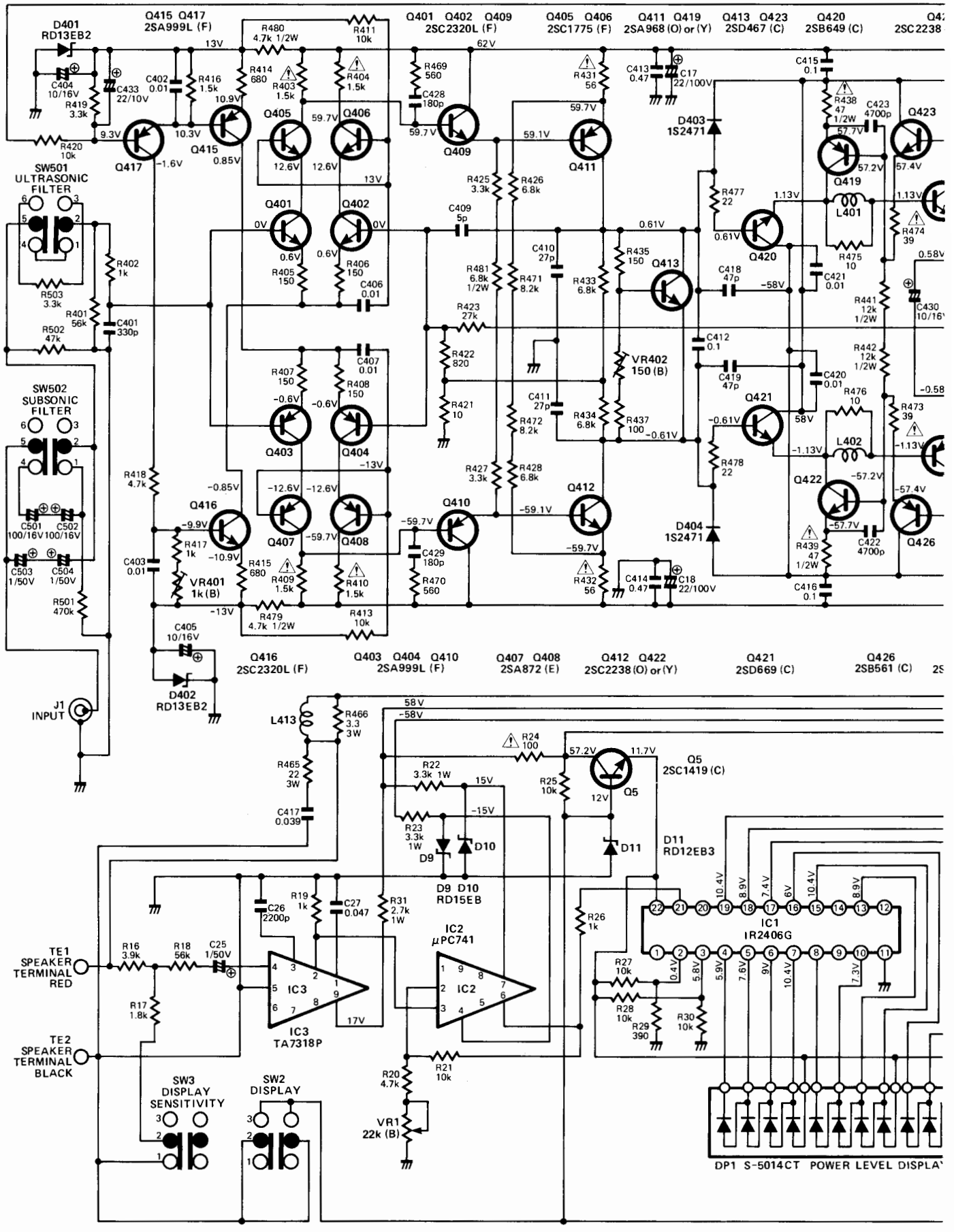


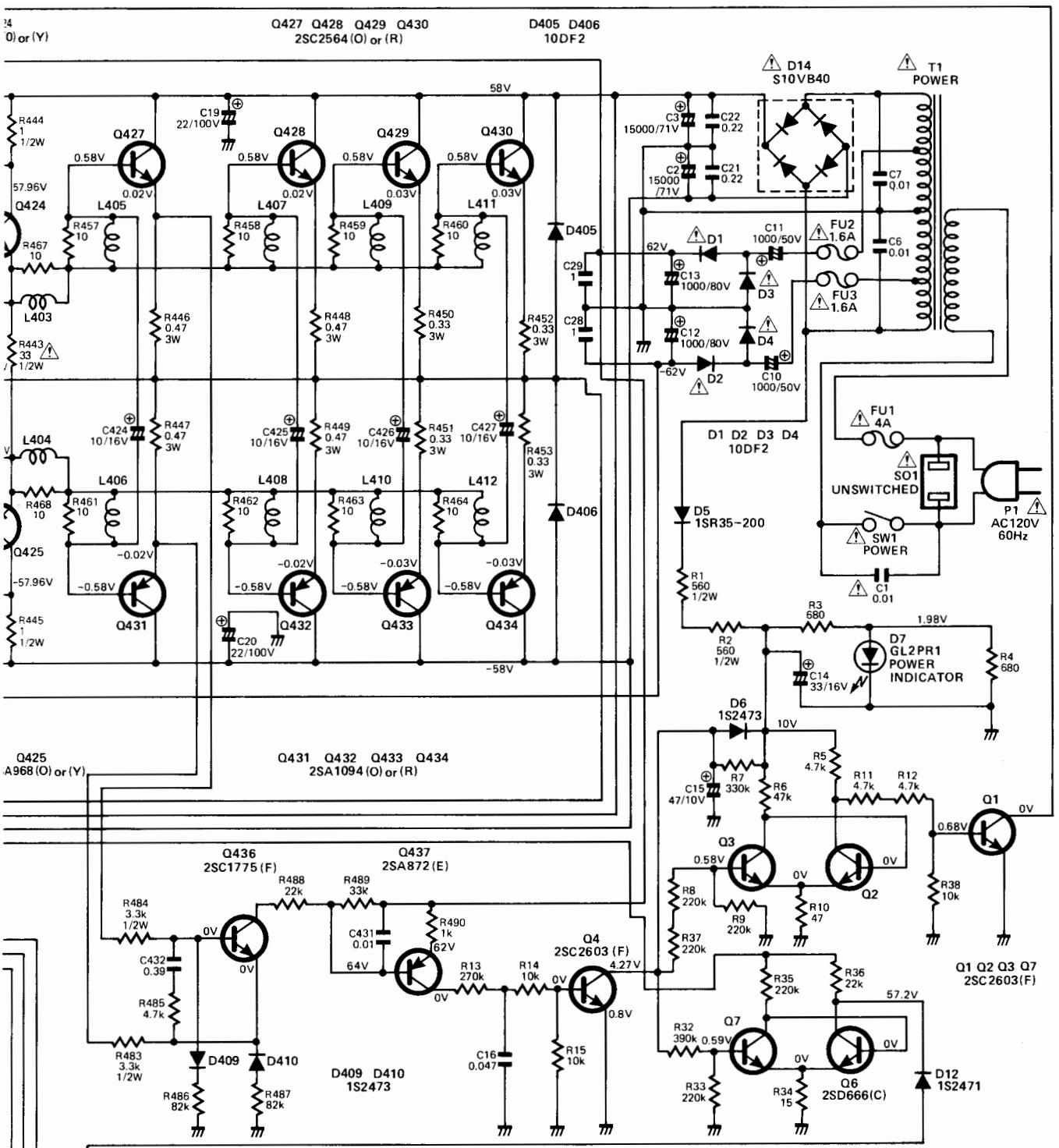
Fig. 1 – Alignment Points Location

GENERAL UNIT EXPLODED VIEW



SCHEMATIC DIAGRAM

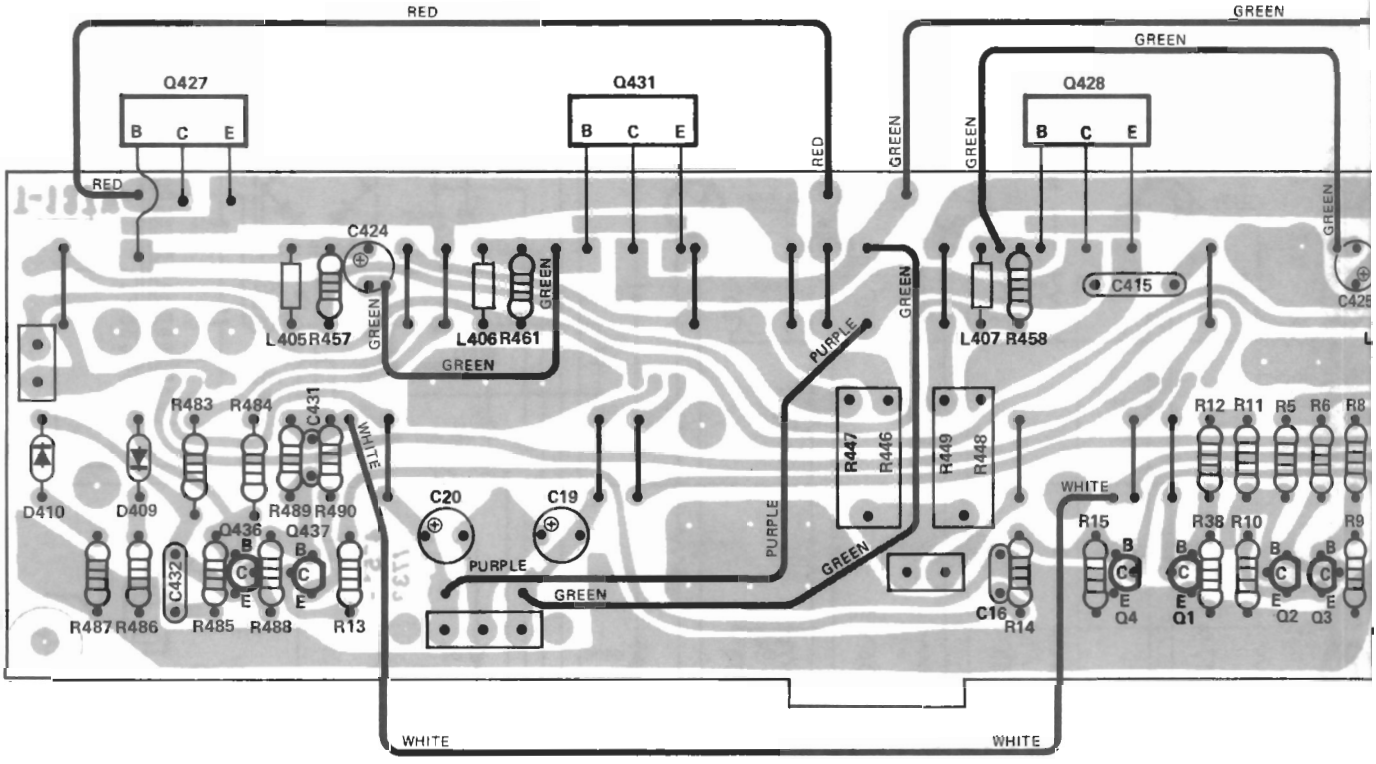




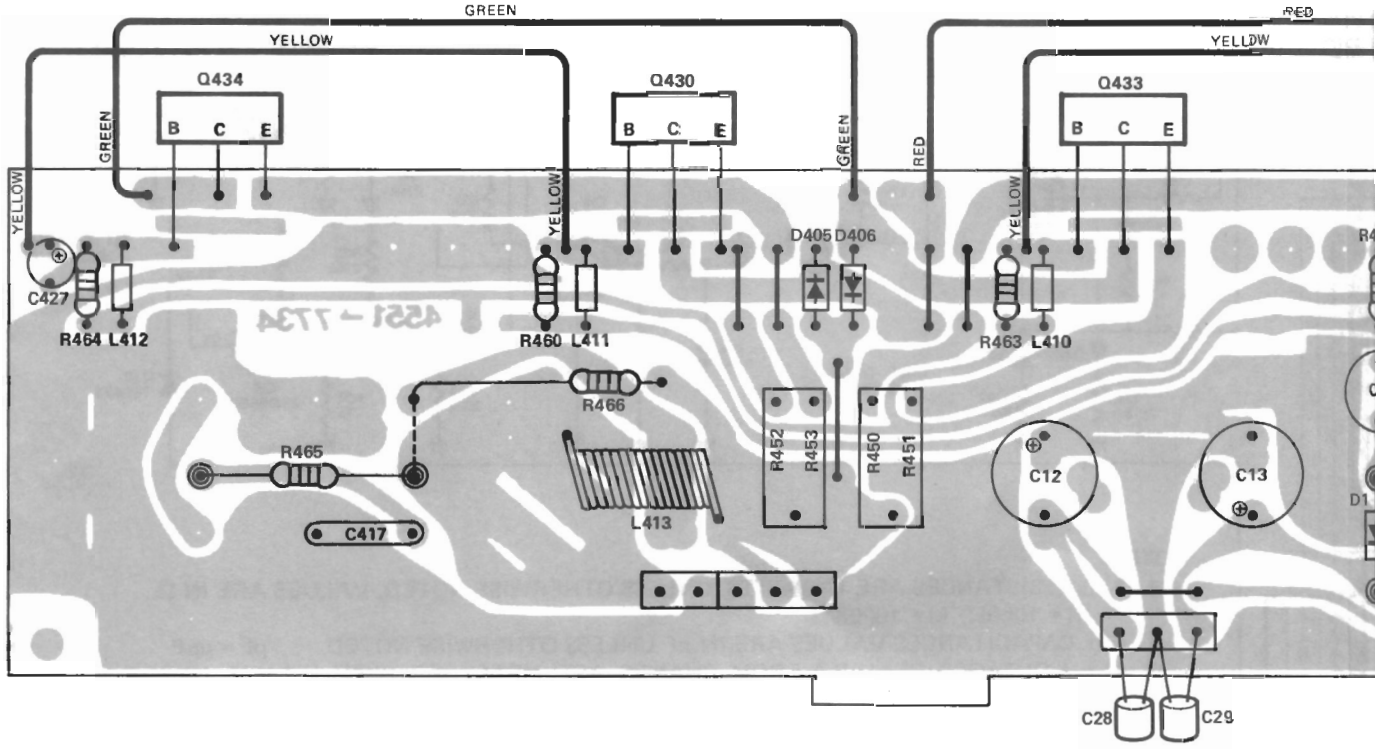
NOTES:

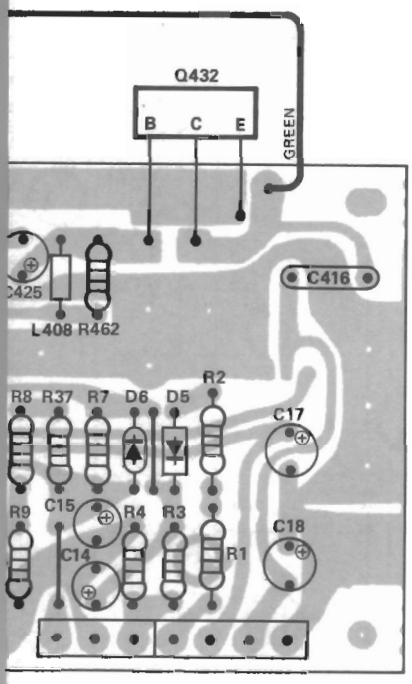
1. ALL RESISTANCES ARE 1/4 WATTS, UNLESS OTHERWISE NOTED, VALUES ARE IN Ω.
   K = 1000Ω, M = 1000KΩ
2. ALL CAPACITANCES VALUES ARE IN μF UNLESS OTHERWISE NOTED. pF = μμF
3. ALL VOLTAGES READING FROM CHASSIS ARE MEASURED WITH V.T.V.M. UNDER NO SIGNAL CONDITIONS.
4. ⚠ SAFETY-REQUIREMENTS COMPONENTS IN ACCORDANCE WITH PRESENT SAFETY REGULATIONS, THESE COMPONENTS MUST ONLY BE REPLACED BY ORIGINAL PARTS.

POWER OUTPUT & PROTECTION P.C. BOARD

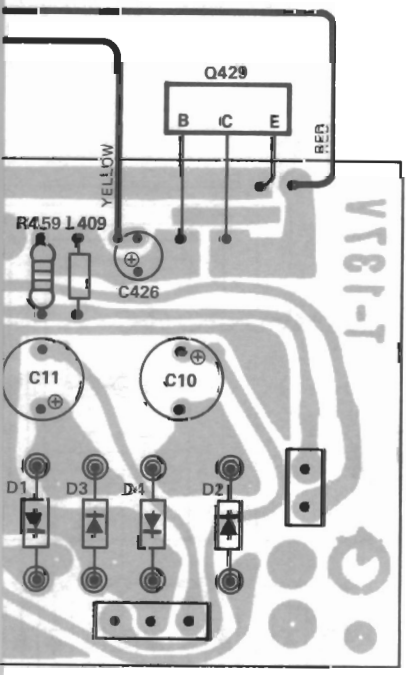


POWER OUTPUT & RECTIFIER P.C. BOARD



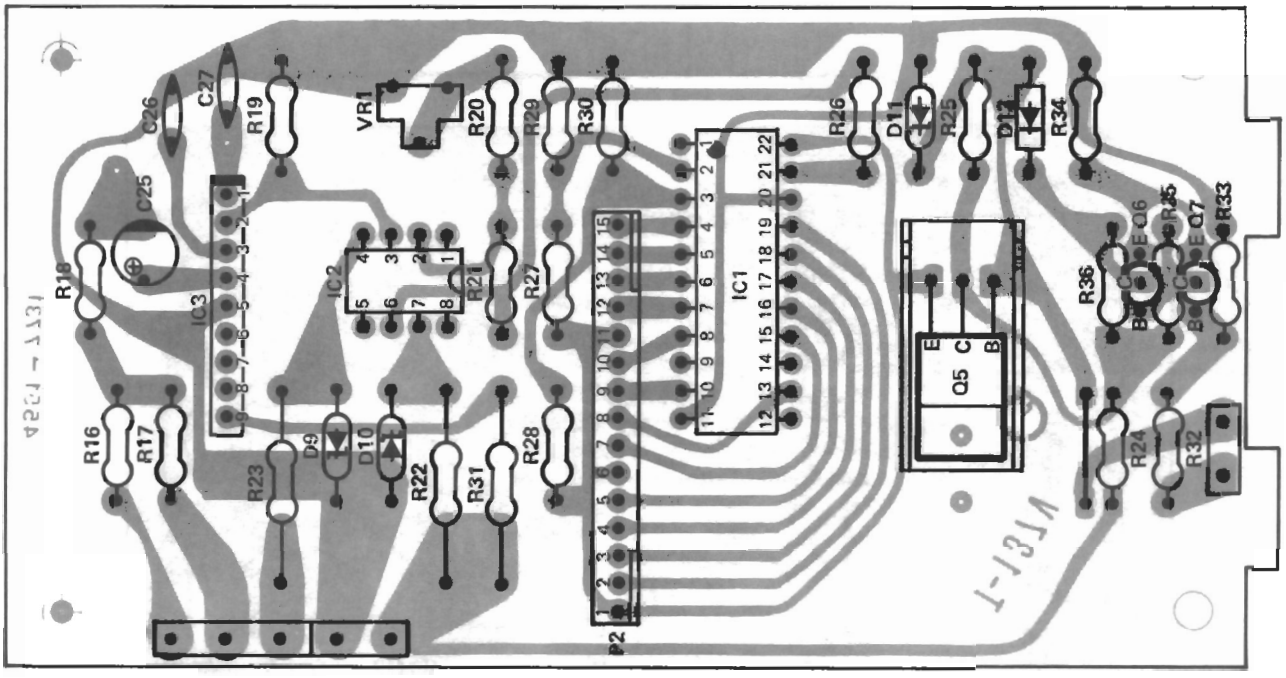


Ref. No.	Part No.	Description
	RESISTORS, CEMENT	
R446/447, 448/449	5273-R33672	0.33Ω ±10% 3W×2 Special Dual
	CAPACITORS, ELECTROLYTIC	
C17, 18, 19, 20	5345-226J0211	22μF ±20% 100V
	TRANSISTORS	
Q1, 2, 3, 4	5613-2603(F)	2SC2603(F) Overload Protector/Muting
Q427, 428	5613-2564(O)	2SC2564(O)or(R) } Power Output
Q431, 432	5611-1094(O)	2SA1094(O)or(R) } Power Output
Q436	5613-1775(F)	2SC1775(F) } Overload Protector
Q437	5611-872(E)	2SA872(E) } Overload Protector
	DIODES	
D5	5632-1SR35-20	1SR35-200
D6, 409, 410	5636-1S2473	1S2473
	MISCELLANEOUS	
L405, 406, 407, 408	5597-45502	Ferrite Bead



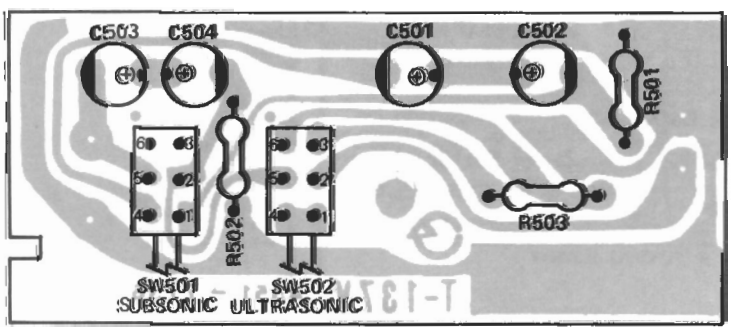
Ref. No.	Part No.	Description
	RESISTORS, CEMENT	
R450/451, 452/453	5273-R33672	0.33Ω ±10% 3W×2 Special Dual
	CAPACITORS, ELECTROLYTIC	
C10, 11	5345-108-50	1000μF +50%−10% 50V
C12, 13	5341-108H0270	1000μF ±20% 80V
	TRANSISTORS	
Q429, 430	5613-2564(O)	2SC2564(O)or(R) } Power Output
Q433, 434	5611-1094(O)	2SA1094(O)or(R) } Power Output
	DIODES	
D1, 2, 3, 4, 405, 406	5632-10DF2	10DF2
	MISCELLANEOUS	
L409, 410, 411, 412	5597-45502	Ferrite Bead
L413	5991-7125	Coil, RF Choke

POWER LEVEL DISPLAY DRIVER P.C. BOARD



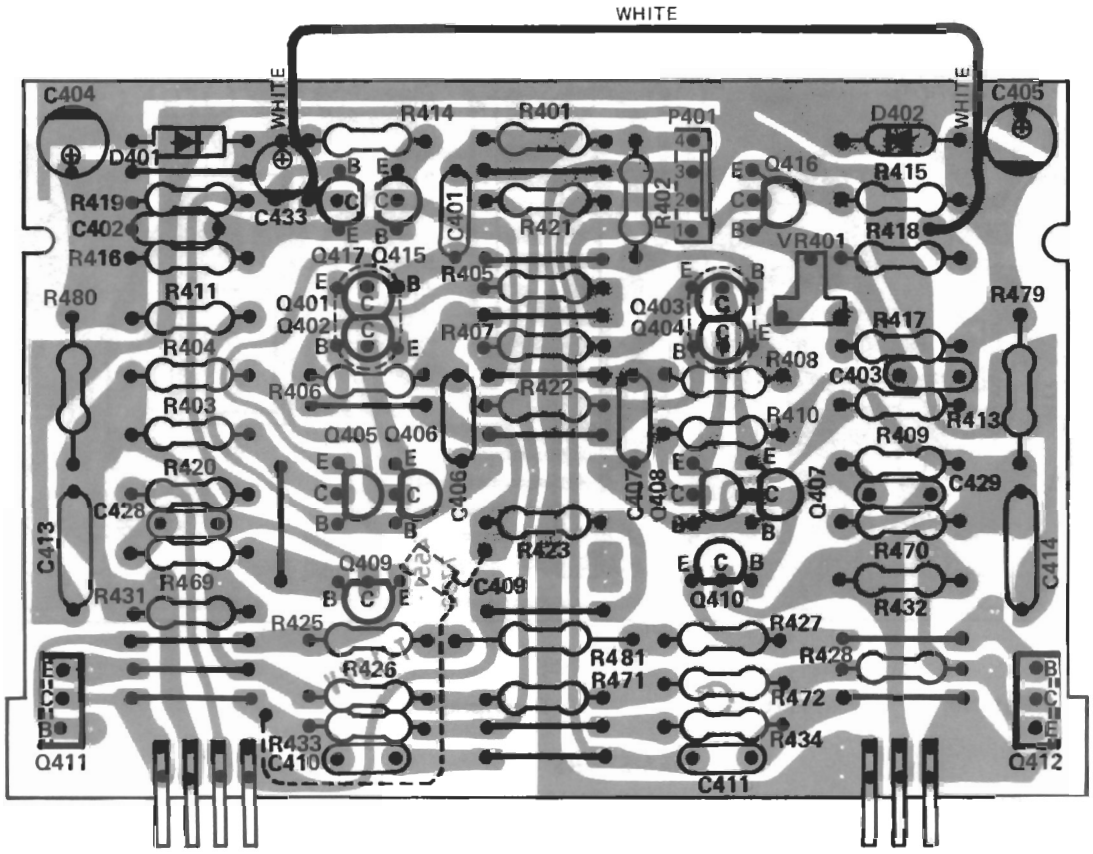
Ref. No.	Part No.	Description
	RESISTORS	
R24	5102-1014713	100Ω ±2% 1/4W Fuse
VR1	5101-2238575	Variable Resistor, 22kΩ(B)
	INTEGRATED CIRCUITS	
IC1	5652-IR2406G	IR2406G Power Level Display Driver
IC2	5652-μPC741	μPC741 Buffer Amp.
IC3	5652-TA7318P	TA7318P Linear-Log Converter
	TRANSISTORS	
Q5	5613-1419(C)	2SC1419(C) Voltage Regulator
Q6, 7	5613-2603(F)	2SC2603(F) Muting
	DIODES	
D9, 10	5635-RD15EB	Zener, RD15EB
D11	5635-RD12EB3	Zener, RD12EB3
D12	5636-1S2471	1S2471

FILTER SWITCHES P.C. BOARD



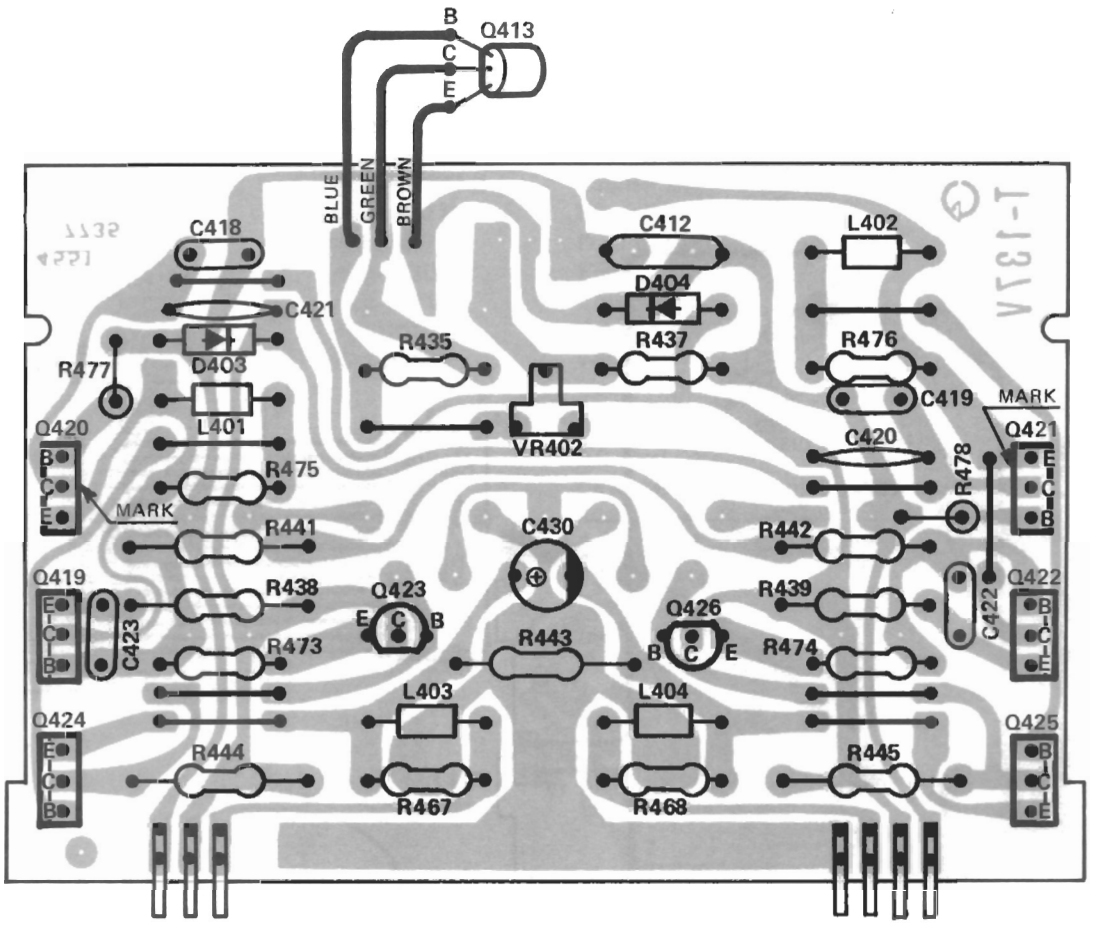
Ref. No.	Part No.	Description
SW501, 502	4431-01027369	Push Switch, Subsonic Filter, Ultrasonic Filter

PRE-DRIVER P.C. BOARD



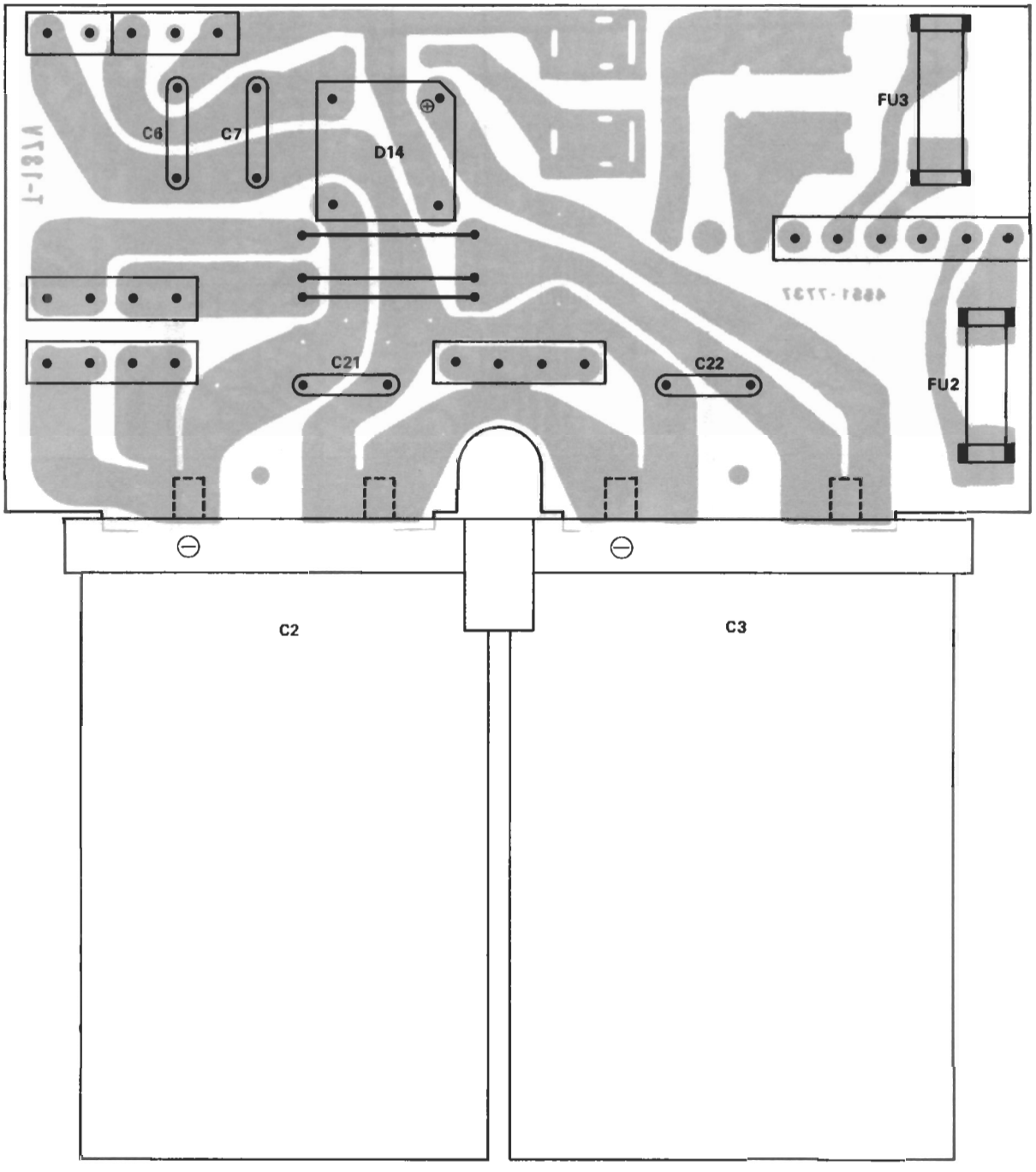
Ref. No.	Part No.	Description	
		RESISTORS	
R403, 404, 409, 410	5102-1524713	1.5kΩ ±2% 1/4W Fuse	
R431, 432	5102-5604713	56Ω ±2% 1/4W Fuse	
VR401	5101-1027875	Variable Resistor, 1kΩ(B)	
		TRANSISTORS	
Q401, 402	5613-2320L(F)	2SC2320L(F)	Differential Amp.
Q403, 404	5611-999L(F)	2SA999L(F)	
Q405, 406	5613-775(F)	2SC775(F)	
Q407, 408	5611-872(E)	2SA872(E)	
Q409	5613-2320L(F)	2SC2320L(F)	Pre-Driver
Q410	5611-999L(F)	2SA999L(F)	
Q411	5611-968(O)	2SA968(O)or(Y)	
Q412	5613-2238(O)	2SC2238(O)or(Y)	
Q415, 417	5611-999L(F)	2SA999L(F)	Muting
Q416	5613-2320L(F)	2SC2320L(F)	
		DIODES	
D401, 402	5635-RD13EB2	Zener, RD13EB2	

DRIVER P.C. BOARD



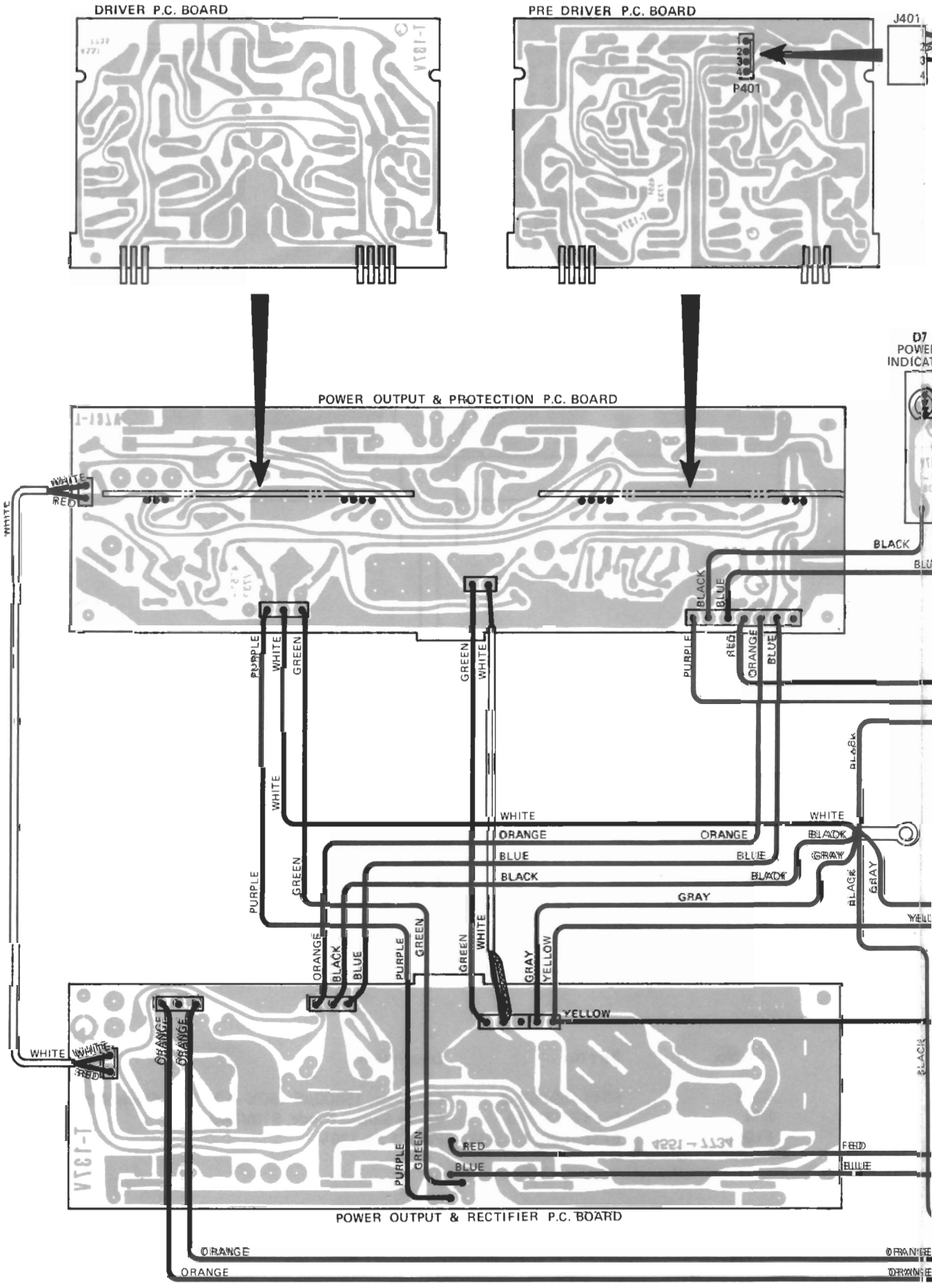
Ref. No.	Part No.	Description
	RESISTORS	
R438, 439	5102-4705114	47Ω ±5% 1/2W Fuse
R443	5102-2705114	27Ω ±5% 1/2W Fuse
R473, 474	5102-3904713	39Ω ±2% 1/4W Fuse
VR402	5101-1517475	Variable Resistor, 150Ω(B)
	TRANSISTORS	
Q413	5614-467(C)	2SD467(C) Bias Stabilization
Q419, 425	5611-968(O)	2SA968(O)or(Y) }
Q420	5612-649(C)	2SB649(C) }
Q421	5614-669(C)	2SD669(C) } Driver
Q422, 424	5613-2238(O)	2SC2238(O)or(Y) }
Q423	5614-467(C)	2SD467(C) }
Q426	5612-561(C)	2SB561(C) }
	DIODES	
D403, 404	5636-1S2471	1S2471
	MISCELLANEOUS	
L401, 402, 403, 404	5597-45502	Ferrite Bead

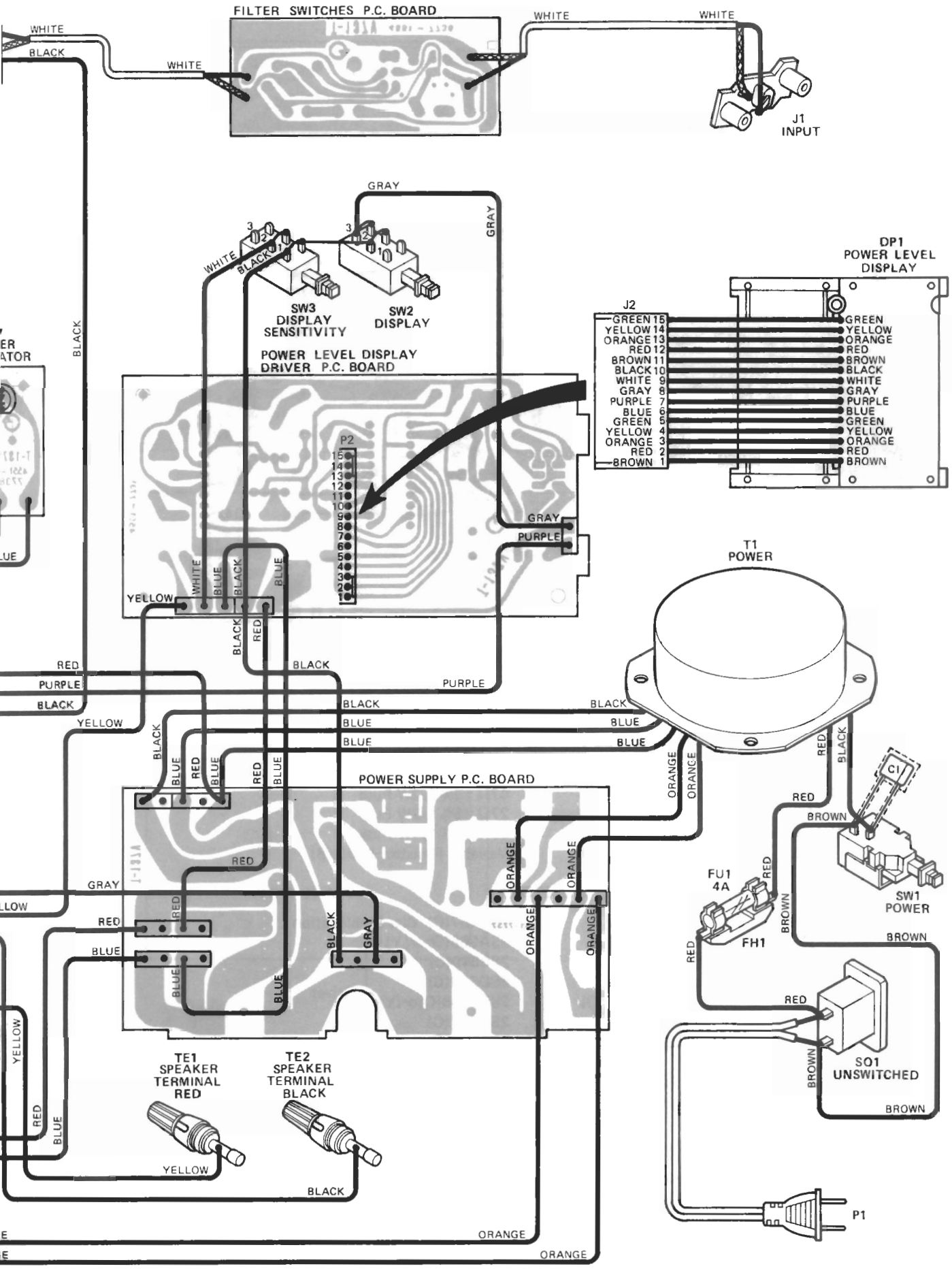
POWER SUPPLY P.C. BOARD



Ref. No.	Part No.	Description
C2, 3	5341-159Z0272	Capacitor, 15000μF +50%—10% 71V Electrolytic
D14	5685-S10VB40	Bridge Silicon Diode, S10VB40
FU2, 3	5732-162031	Fuse, 1.6A 125V

WIRING DIAGRAM




FILTER SWITCHES P.C. BOARD
WHITE
BLACK
WHITE
WHITE
WHITE
J1
INPUT
GRAY
GRAY
WHITE
BLACK
SW3
DISPLAY
SENSITIVITY
SW2
DISPLAY
DP1
POWER LEVEL
DISPLAY
J2
GREEN 15
YELLOW 14
ORANGE 13
RED 12
BROWN 11
BLACK 10
WHITE 9
GRAY 8
PURPLE 7
BLUE 6
GREEN 5
YELLOW 4
ORANGE 3
RED 2
BROWN 1
POWER LEVEL DISPLAY
DRIVER P.C. BOARD
P2
GRAY
PURPLE
YELLOW
WHITE
BLUE
BLACK
BLUE
BLACK
RED
T1
POWER
RED
PURPLE
BLACK
BLACK
BLUE
BLUE
BLACK
BLUE
BLUE
BLUE
RED
BLUE
RED
BLUE
POWER SUPPLY P.C. BOARD
ORANGE
ORANGE
RED
BLACK
C1
RED
BROWN
FU1
4A
FH1
SW1
POWER
BROWN
RED
BROWN
GRAY
RED
RED
BLUE
BLUE
BLACK
GRAY
ORANGE
ORANGE
ORANGE
ORANGE
RED
SO1
UNSWITCHED
BROWN
BROWN
TE1
SPEAKER
TERMINAL
RED
TE2
SPEAKER
TERMINAL
BLACK
YELLOW
BLACK
P1
ORANGE
ORANGE

CHASSIS PARTS LIST

Ref. No.	Part No.	Description
	GENERAL UNIT	
101	A414-HK775	Cabinet Top Assembly
102	A424-HK775-A	Cabinet Back Assembly
103	A424-HK775-B	Cabinet Bottom Assembly
104	A443-HK775	Front Panel Assembly
105	A662-HK775	Push Button Assembly, Display, Display Sensitivity
115	1319-7330	Foot
116	1319-7131	Foot
119	1423-00102	Cabinet Bottom
126	1531-03401	Window
	ELECTRICAL	
P1	4161-7387	AC Line Cord
SO1	4474-152	External AC Socket, Unswitched
SW1	4431-01017358	Push Switch, Power
SW2, 3	4431-01027169	Push Switch, Display, Display Sensitivity
T1	5584-701348	Power Transformer
FU1	5732-402028	Fuse, 4A 125V
FH1	4472-7128	Fuse Holder
C1	5352-1030959	Capacitor, 0.01μF ±20% AC125V Metalized Polyester
J1	4481-5	Jack, Input
TE1	4214-111	Speaker Terminal, Red
TE2	4214-112	Speaker Terminal, Black
DP1	5623-S-5014CT	LED Display Assembly, S-5014CT Power Level
D7	5637-GL2PR1	Light Emitting Diode, GL2PR1 Power Indicator